The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte GUNTER DOEMENS, PETER RUMMEL,
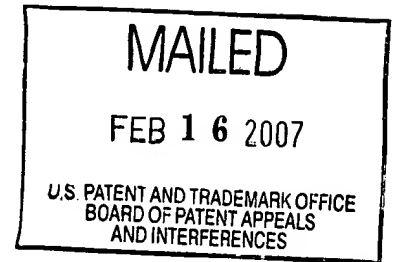and RICHARD SCHNEIDER

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Appeal 2006-3078
Application 09/381,839
Technology Center 2600

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Decided: February 16, 2007

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Before KENNETH W. HAIRSTON, JOSEPH L. DIXON, and HOWARD B. BLANKENSHIP, Administrative *Patent Judges*.

BLANKENSHIP, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 4-7, the only claims pending in this application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

INTRODUCTION

The claims are directed to a method for identification of an object. The method may be used for identifying faces for the purpose of, for example, access authorization for specific rooms or buildings. Claim 4 is illustrative:

> 4. A method for identification of an object having an object surface, said method comprising:
>
> illuminating a digital micro-mirror arrangement via a light source;
>
> successively projecting a number of encoded illumination patterns by driving said digital micro-mirror arrangement to sequentially illuminate said object surface, with the digital micro-mirror arrangement being sequentially illuminated with at least three colors in a beam path through a variable color filter onto said object surface for identification of at least three depth planes of said object in a single image;
>
> registering said image of said object with a color camera from a direction different from said beam path;
>
> determining a three-dimensional image of a topography of said object surface from said registration in a control and evaluation unit, the determining including the use of at least triangulation principles; and
>
> evaluating the three-dimensional image and a two-dimensional image of said object.

The Examiner relies on the following prior art references to show unpatentability:

Di Matteo	US 4,511,252	Apr. 16, 1985
Kado	US 5,410,609	Apr. 25, 1995
Poradish	US 5,905,545	May 18, 1999

The rejection as presented by the Examiner is as follows:

Claims 4-7 are rejected under 35 U.S.C § 103(a) as unpatentable over Di Matteo, Poradish, and Kado.

OPINION

The Examiner sets forth the rejection of representative claim 4 at pages 3 through 5 of the Answer. Appellants contend that Di Matteo does not teach, contrary to the rejection, "triangulation principles."

The Examiner finds that Di Matteo teaches triangulation in the embodiments depicted in Figures 8 and 18 through 20 of the reference. According to the Examiner, Figure 8 shows that a triangle is formed among known points 58c, 58d, and unknown point P, and another triangle is formed among known points 58a, 58b, and unknown point P. Appellants respond (Br. 5-6) that the text of Di Matteo speaks of "interpolation," which Appellants hold to be distinct from "triangulation."

With respect to the embodiment of Figures 18 through 20, the Examiner finds that Di Matteo teaches that identifying the coordinates of lens node 108 includes using triangulation principles to analyze the geometric arrangement of Figure 19a. The Examiner points to material in column 14 of the reference, which discloses, *inter alia*, that the physical location of lens node 108 may be determined in the plane of the triangle having vertices 108, 112, and 114. (Answer 11-12). In Appellants' discussion of Figure 8 of Di Matteo, Appellants concede that triangulation techniques may involve using trigonometric principles to determine the coordinates of a point in space, where the point may be the vertex of a

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triangle having two other vertices with known coordinates (Br. 7), which seems to be a fair description of the embodiment of Figures 18 through 20.

In any event, Appellants state a contrary position at page 4 of the Reply Brief. Appellants there assert that determining the spatial coordinates of lens node 108 is not "triangulation" because it does not involve finding a distance to the lens node. According to Appellants, a distance (e.g., one foot) to a point is "not comparable" to a location (e.g., x, y, and z coordinates) of a point.

As evidence in support of their position, Appellants provide in the Evidence Appendix of the Brief one page from the electronic "dictionary" [sic; encyclopaedia] *Wikipedia* for the term "triangulation" and five pages from the same source for the term "interpolation" (printed Oct. 10, 2005). According to the entry for "triangulation," in trigonometry and elementary geometry, triangulation is the process of finding a distance to a point by calculating the length of one side of a triangle, given measurements of angles and sides of the triangle formed by that point and two other reference points. According to the entry for "interpolation," in the mathematical subfield of numerical analysis, interpolation is a method of constructing new data points from a discrete set of known points. We find that the "interpolation" article discusses several different methods of interpolation -- including a form of trigonometric interpolation, at page 4 of the second Appendix -- which indicates that the term is not specific as to *how* new data points are constructed from a set of known points.

What a reference teaches is a question of fact. *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994); *In re Beattie*, 974 F.2d 1309, 1311, 24 USPQ2d 1040, 1041 (Fed. Cir. 1992). We are not persuaded

that the Examiner errs in finding that Di Matteo teaches triangulation principles.

As the Examiner indicates, Appellants seem to place too fine a point on what may be deemed to constitute "triangulation principles," particularly in view of the lack of a specific definition, cursory treatment, and admitted conventionality in Appellants' instant specification. Appellants' specification suggests (5:29-30) that triangulation may be used in determining a "height measurement." The disclosure does not, however, convey that triangulation principles are limited to determining height, but merely that a height is one quantity that may be determined from triangulation.

Moreover, in our view, when the coordinates of a point in space with respect to a reference point (e.g., the vertex of a triangle) are determined, the *distance* to the point is thereby determined by the coordinate system. The evidence suggests that triangulation principles would be understood to refer to any application of the mathematical principles of trigonometry to solve for an unknown quantity (e.g., the coordinates of a point in space).

Even though we consider Appellants' evidence to be not inconsistent with the Examiner's position, we do not attribute much weight to the evidence if the evidence is to show how the artisan would interpret the recitation of "triangulation principles." *Wikipedia* is not a recognized text relating to the art of object identification and would be, at best, accidentally consonant with the artisan's understanding of the term "triangulation" at the time of invention. *Wikipedia*, available on the World Wide Web, is "the free encyclopaedia" that *anyone* can edit.

See http://en.wikipedia.org/wiki/Wikipedia:Introduction (Feb. 8, 2007). We compare, for example, Appellants' "definition" of triangulation in the Evidence Appendix, apparently printed from *Wikipedia* on October 10, 2005 -- "triangulation is the process of finding a distance to a point by calculating the length of one side of a triangle. . . ." -- with the current (Feb. 8, 2007) entry for triangulation -- "triangulation is the process of finding *coordinates and* distance to a point by calculating the length of one side of a triangle. . . ." (emphasis added). *See* http://en.wikipedia.org/wiki/Triangulation (Feb. 8, 2007).[1]

We are not persuaded that the Examiner erred in the rejection. We therefore sustain the rejection of claims 4-7 under 35 U.S.C § 103(a) as unpatentable over Di Matteo, Poradish, and Kado.

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CONCLUSION

In summary, we affirm the 35 U.S.C § 103(a) rejection of claims 4-7.

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[1] Printed copies (four pages) of the noted Web entries should mail as an attachment to this decision. We did not disturb (i.e., did not edit) the entry for "triangulation" that we found.

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AFFIRMED

ELD/gw

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